VEGETATIVE WEED ID

1. This weed is ____________________________
NUTRIENT DEFICIENCY

2. The purple coloration on the lower leaves of these canola plants are typical of a deficiency of which of the following nutrients:

A) Nitrogen
B) Potassium
C) Phosphorus
D) Iron
E) Sulfur
This seed disease is:

A) blacktip  D) ergot
B) blue eye mold  E) loose smut
C) corn smut  F) Northern corn leaf blight
SEED BAG LABELS

The above symbols found on seed bags indicate the presence of herbicide and/or insect resistance traits in the seed. Which indicates crop resistance to the herbicide active ingredient **glyphosate**?

**ANSWER:** A, B, C, D, or E
CROP PRODUCTS

5. Use the sample on display to answer the following two questions:
   a. What is this crop product called? ________________
   b. What crop is this specific sample made from? ________________

List both answers in correct order.
6. This soybean disease is:

A) pod and stem rot of soybean
B) bacterial blight of soybean
C) bean pod mottle virus
D) rust
E) Phytophthora root rot
F) purple seed stain of soybean
PLANT STRUCTURE - SPECIALIZED STEMS

The type of specialized stem shown here marked by the pin that is used by this potato plant for storage and asexual propagation is called a:

A) Rhizome  
B) Tuber  
C) Stolon  
D) Bulb  
E) Crown
CROP GROWTH AND DEVELOPMENT

8. The wheat stems shown here are currently at which of the following growth stages:

A) tillering
B) jointing
C) boot
D) heading
E) anthesis (flowering)
F) physiological maturity
This piece of equipment is a (an) ________
PESTICIDE APPLICATION

10. Use the flat fan sprayer nozzle tip provided to complete the following two statements. At standard 40 psi pressure:

a. The angle of the spray pattern would be ___________ degrees (°)

b. The nozzle delivery rate would be __________ gallons per minute (GPM)

List both answers in correct order.
VEGETATIVE WEED ID

11. This weed is __________
12. The numerical vegetative growth stage of these soybean plants is V-_____
3. This disease is:

A) loose smut of wheat  
B) barley yellow dwarf virus  
C) wheat streak mosaic virus  
D) wheat scab  
E) stem rust of wheat  
F) leaf rust of wheat
VEGETATIVE WEED ID

14. This weed is ____________________
PLANT STRUCTURE

15. Use the plants shown here to answer the following two part question. ANSWER: A, B, C, or D

a. Which of the plants has **palmate venation**?

b. Which of the plants is **pubescent**?

List both answers in correct order.
16. Which corn seedling was planted deepest?

ANSWER: A, B, C, or D
17. The structure marked by the pin is called the ____________________

Word bank for this question: radicle, coleoptile, endosperm, cotyledon, hypocotyl, mesocotyl, cotyledon, primary root, seminal root.
18. Shown are three standard tags that may be found on pedigreed seed regulated by state crop improvement associations. The correct order of generation of production for these three seed classes is:

A. Certified → Registered → Foundation
B. Foundation → Certified → Registered
C. Registered → Certified → Foundation
D. Certified → Foundation → Registered
E. Foundation → Registered → Certified
F. Registered → Foundation → Certified
20. This insect is:

A) corn rootworm  
B) green cloverworm  
C) corn earworm  
D) fall armyworm  
E) black cutworm  
F) European corn borer
22. This insect is:

A) stinkbug  D) chinch bug
B) lady beetle  E) painted lady
C) blister beetle  F) lacewing
CROP PRODUCTS and CROP QUALITY

23. Which of the above wheat samples would typically be used to make the food products displayed?

ANSWER: A, B, C, or D
24. Use the hybrid corn seed bag provided to answer the following two questions:

a. How many different transgenic (GMO) traits are in this seed?

b. How many ounces of air pressure (PSI) are required for this seed using a White Air Planter with regular seed discs? (answer is a range)

List both answers in correct order.
25. The correct soil textural class for a soil with 30% clay, 10% silt, and 60% sand is a ________________________.
PLANT STRUCTURE – DICOT LEAVES

26. Which of the plants shown has **palmately compound** leaf type with **alternate** leaf arrangement?

Answer: A, B, C, or D.
CROP PRODUCTS

27. What crop is the above feed ingredient made from?

A) Wheat
B) Alfalfa
C) Corn
D) Soybean
E) Cotton
F) Grain Sorghum
28. This insect is:

A) blister beetle  
B) bean leaf beetle  
C) corn rootworm adult  
D) chinch bug  
E) stinkbug  
F) lady bug
CROP GROWTH AND DEVELOPMENT

29. Observe the corn plant on display to complete the following two statements:
   a. The numerical growth stage is _______________ (letter and number).
   b. The descriptive term for this growth stage is ____________________.

List both answers in correct order.
CROP QUALITY

30. The apparatus shown here is used to measure the test weight of grain samples. The standard legal weight per bushel for the crop on display is:

A) 60 pounds/bushel
B) 58 pounds/bushel
C) 56 pounds/bushel
D) 50 pounds/bushel
E) 48 pounds/bushel
31. This piece of equipment is a (an) _________________. 
32. This insect is

A) corn earworm  
B) green cloverworm  
C) corn rootworm  
D) fall armyworm  
E) European corn borer  
F) black cutworm
33. This disease is:

A) charcoal rot  
B) pod and stem rot  
C) Gibberella stalk rot  
D) stem rust  
E) corn smut  
F) blue eye mold
SOIL TEST INTERPRETATION

34. Use the Soil Test Report above and the materials on display to answer the following two-part question:

a. Which field would most likely need application of the material in pan a.

b. Which field would most likely need application of the material in pan b.

List both answers in correct order.
### GENERAL INFORMATION:

**Producer:** Willie Wildcat  
**Address:**  
**City, State:**  
**County:** Riley  
**Region:** Northeast  
**Date:** 5/5/14

### CROP INFORMATION:

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Total Sample Depth (in)</th>
<th>Intended Crop</th>
<th>Yield Goal (bu/acre or T/acre)</th>
<th>Second Crop</th>
<th>Yield Goal (bu/acre or T/acre)</th>
<th>Third Crop</th>
<th>Yield Goal (bu/acre or T/acre)</th>
<th>Previous Crop</th>
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<tbody>
<tr>
<td>Field 1</td>
<td>24</td>
<td>Corn</td>
<td>190</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soybeans</td>
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<tr>
<td>Field 2</td>
<td>24</td>
<td>Wheat</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Grain Sorghum</td>
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<tr>
<td>Field 3</td>
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<td>Soybeans</td>
<td>50</td>
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<td></td>
<td></td>
<td></td>
<td>Corn</td>
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### SOIL TEST RESULTS:

<table>
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<tr>
<th>Lab Number</th>
<th>Field ID</th>
<th>pH</th>
<th>SMP Buffer pH</th>
<th>Organic Matter %</th>
<th>Nitrate-N ppm (surface or profile)*</th>
<th>Mehlich 3 P ppm</th>
<th>NH₄OAc Ext. K ppm</th>
<th>DTPA Zn ppm</th>
<th>Sulfur ppm</th>
<th>Chloride ppm</th>
<th>Boron ppm</th>
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<tbody>
<tr>
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<td>4.9</td>
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<td>16</td>
<td>170</td>
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<tr>
<td>Field 2</td>
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<td>6.1</td>
<td>6.5</td>
<td>2.0</td>
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<td>12</td>
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<tr>
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<td>6.7</td>
<td>6.7</td>
<td>2.5</td>
<td>30</td>
<td>5</td>
<td>210</td>
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</tbody>
</table>

*Enter profile NO₃-N value if 0-24” sample was submitted, otherwise enter the NO₃-N value for the surface sample.
SOIL PROPERTIES

35. Which of the soils on display has the highest clay content? (you may do texture by feel – water and towels provided)

Answer: Soil A, Soil B, or Soil C
36. There is a lot of renewed interest recently in soil microbiology. What organism is found in both the material in the pan and the structures marked by the pins that enhances crop productivity?

A) *Agrobacterium tumefaciens* bacteria that is used in making transgenic crops
B) *Bacillus thuringiensis* (Bt) bacteria that produce a toxin to control insects
C) *Rhizobium* bacteria that fix nitrogen symbiotically in legume nodules
D) *Penicillium* bacteria that enhance phosphorus availability in soils
E) *Mycorrhiza* fungi that aid in uptake of water and nutrients
37. The correct legal description of the area labeled “G” in section 10 of T2N R3W and the appropriate number of acres in this area is:

A) \( W \frac{1}{2} \) of SW \( \frac{1}{4} \) of SE \( \frac{1}{4} \) = 40 acres
B) \( W \frac{1}{2} \) of SE \( \frac{1}{4} \) of SW \( \frac{1}{4} \) = 20 acres
C) \( E \frac{1}{2} \) of SE \( \frac{1}{4} \) of SW \( \frac{1}{4} \) = 40 acres
D) \( W \frac{1}{2} \) of SW \( \frac{1}{4} \) of SE \( \frac{1}{4} \) = 20 acres
E) \( E \frac{1}{2} \) of SW \( \frac{1}{4} \) of SE \( \frac{1}{4} \) = 40 acres
F) \( W \frac{1}{4} \) of SW \( \frac{1}{2} \) of SE \( \frac{1}{4} \) = 20 acres
PLANT STRUCTURE – FRUITS

38. (2 pt). This plant is a member of the Nightshade family. Members of this plant family often produce seeds in the fruit type shown here. This fruit type is botanically called a:

A. capsule
B. pod
C. berry
D. achene
E. caryopsis